

ATTACHMENT B

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A method for inhibiting differentiation of a human stem cell, which method comprises incubating the stem cell in the presence of an agonist of a LPL receptor, the agonist selected from the group consisting of S1P, dihydro S1P, LPA, PAF and SPC ~~or functional equivalents thereof capable of inhibiting differentiation of the stem cell.~~
2. (Withdrawn) A method for modulating spontaneous differentiation of a stem cell, which method comprises incubating the stem cell in the presence of a ligand of a class III tyrosine kinase receptor.
3. (Previously Presented) A method for modulating differentiation of a human stem cell, which method comprises incubating the stem cell in the presence of an agonist of a LPL receptor and a ligand of a class III tyrosine kinase receptor.
4. (Canceled)
5. (Currently Amended) A method according to claim 1 wherein the LPL receptor is selected from the group consisting of S1P1, S1P2, and S1P3.
- 6-7. (Canceled)
8. (Currently Amended) A method according to claim 1 wherein the agonist is S1P ~~or functional equivalent thereof capable of inhibiting differentiation of the stem cell.~~

9. (Currently Amended) A method according to claim 1 wherein the agonist is dihydro S1P ~~or functional equivalent thereof capable of inhibiting differentiation of the stem cell.~~
10. (Previously Presented) A method according to claim 3 wherein the tyrosine kinase receptor is PDGFR- α or PDGFR- β .
11. (Currently Amended) A method according to claim 3 wherein the ligand is a PDGF ~~or functional equivalent thereof capable of inhibiting differentiation of the stem cell.~~
12. (Currently Amended) A method according to claim 11 wherein the PDGF is PDGF $\alpha\alpha$, PDGF $\alpha\beta$ or PDGF $\beta\beta$ ~~or functional equivalents thereof capable of inhibiting differentiation of the stem cell.~~
13. (Currently Amended) A method according to claim 1 wherein the stem cell is co-incubated with ~~a molecule~~ an agent selected from the group consisting of TNF α , NGF (nerve growth factor), a muscarinic acetylcholine agonist, ~~or a serum or~~ and a phorbol ester.
14. (Original) A method according to claim 1 wherein the stem cell is derived from foetal tissue or adult tissue.
15. (Original) A method according to claim 14 wherein the stem cell is an ES cell.
16. (Original) A method according to claim 14 wherein the stem cell is a hES cell.
17. (Withdrawn) A serum free or substantially serum free medium useful for modulating spontaneous differentiation of a stem cell, comprising an agonist of a LPL receptor.

18. (Withdrawn) A serum free or substantially serum free medium useful for modulating spontaneous differentiation of a stem cell, comprising a ligand of a class III tyrosine kinase receptor.
19. (Withdrawn) A serum free or substantially serum free medium useful for modulating spontaneous differentiation of a stem cell, comprising an agonist of a LPL receptor and a ligand of a class III tyrosine kinase receptor.
20. (Withdrawn) A medium according to claim 17 wherein the modulation is inhibition of differentiation.
21. (Withdrawn) A medium according to claim 17 wherein the medium is serum free.
22. (Withdrawn/Currently Amended) A medium according to claim 17 wherein the LPL receptor is selected from the group consisting of S1P1, S1P2, and S1P3.
23. (Withdrawn) A medium according to claim 17 wherein the agonist is a phospholipid.
24. (Withdrawn/Currently Amended) A medium according to claim 23 wherein the agonist is selected from the group consisting of S1P, dihydro S1P, LPA, PAF and ~~SPC or functional equivalents thereof~~.
25. (Withdrawn) A medium according to claim 24 wherein the agonist is S1P or functional equivalent thereof.
26. (Withdrawn) A medium according to claim 24 wherein the agonist is dihydro S1P or functional equivalent thereof.
27. (Withdrawn) A medium according to claim 18 wherein the tyrosine kinase receptor is PDGFR- α or PDGFR- β .

28. (Withdrawn) A medium according to claim 18 wherein the ligand is a PDGF or functional equivalent thereof.
29. (Withdrawn) A medium according to claim 28 wherein the PDGF is PDGFaa, PDGFab or PDGFbb.
30. (Withdrawn) A medium according to claim 19 comprising TNF alpha, NGF (nerve growth factor), a muscarinic acetylcholine agonist, or a serum or phorbol ester.
31. (Withdrawn) A medium according to claim 19 wherein the stem cell is derived from foetal tissue or adult tissue.
32. (Withdrawn) A medium according to claim 31 wherein the stem cell is an ES cell.
33. (Withdrawn) A medium according to claim 31 wherein the stem cell is a hES cell.
34. (Withdrawn) A medium according to claim 17 wherein the base medium is a standard serum free medium.
35. (Withdrawn) A medium according to claim 17 comprising 25mM Hepes.
36. (Withdrawn) A medium according to claim 34 wherein the base medium is based on DMEM supplemented with insulin, transferrin and selenium.
37. (Withdrawn) A medium according to claim 17 or wherein the agonist is S1P and is present in the medium at a concentration of from 0.1 μ M to 10 μ M.
38. (Withdrawn) A medium according to claim 17 wherein the agonist is present in the medium at a concentration of about 10 μ M.

39. (Withdrawn) A medium according to claim 18 wherein the ligand is present in the medium at a concentration of from 1 ng/ml to 20ng/ml where the ligand is either PDGFaa, PDGFab or PDGFbb.

40. (Withdrawn) A medium according to claim 18 wherein the ligand is present in the medium at a concentration of 20 ng/ml.

41. (Currently Amended) A method for propagating a human stem cell, in an undifferentiated state comprising exposing the stem cell to an agonist of a LPL receptor, the agonist selected from the group consisting of S1P, dihydro S1P, LPA, PAF and SPC or functional equivalents thereof inhibit differentiation of the stem cell.

42. (Withdrawn) A stem cell grown and/or maintained in a cell culture medium according to claim 17.

43. (Withdrawn) A stem cell derived from the stem cell according to claim 42.

44. (Withdrawn) A stem cell that is at least partially differentiated derived from the stem cell according to claim 43.

45. (Withdrawn) A method of treating or preventing a disorder of stem cell differentiation comprising administering to an animal in need thereof a composition containing an agonist of a LPL receptor.

46. (Withdrawn) A method of treating or preventing a disorder of stem cell differentiation comprising administering to an animal in need thereof a composition containing a ligand of a class III tyrosine kinase receptor.

47. (Withdrawn) A method of treating or preventing a disorder of stem cell differentiation comprising administering to an animal in need thereof a composition

containing an agonist of a LPL receptor and a ligand of a class III tyrosine kinase receptor.

48. (Withdrawn) A method according to claim 45 wherein the modulation is inhibition of differentiation.

49. (Withdrawn/Currently Amended) A method according to claim 45 wherein the LPL receptor is selected from the group consisting of S1P1, S1P2, and S1P3.

50. (Withdrawn) A method according to claim 45 wherein the agonist is a phospholipid.

51. (Withdrawn/Currently Amended) A method according to claim 45 wherein the agonist is selected from the group consisting of S1P, dihydro S1P, LPA, PAF and SPC or ~~functional equivalents thereof~~.

52. (Withdrawn) A method according to claim 51 wherein the agonist is S1P or functional equivalent thereof.

53. (Withdrawn) A method according to claim 51 wherein the agonist is dihydro-S1P or functional equivalent thereof.

54. (Withdrawn) A method according to claim 46 wherein the tyrosine kinase receptor is PDGFR- α or PDGFR- β .

55. (Withdrawn) A method according to claim 46 wherein the ligand is a PDGF or functional equivalent thereof.

56. (Withdrawn) A method according to claim 55 wherein the PDGF is PDGF $\alpha\alpha$, PDGF $\alpha\beta$ or PDGF $\beta\beta$.

57. (Withdrawn) A method according to claim 45 comprising use of TNF alpha, NGF (nerve growth factor), a muscarinic acetylcholine agonist, or a serum or phorbol ester.
58. (Withdrawn) A method according to claim 45 wherein the stem cell is derived from foetal tissue or adult tissue.
59. (Withdrawn) A method according to claim 58 wherein the stem cell is an ES cell.
60. (Withdrawn) A method according to claim 58 wherein the stem cell is a hES cell.
61. (Withdrawn) A pharmaceutical composition comprising a class III tyrosine kinase receptor ligand and/or a LPL receptor agonist.
62. (Withdrawn) A pharmaceutical composition according to claim 61 comprising TNF alpha, NGF (nerve growth factor), a muscarinic acetylcholine agonist, or a serum or phorbol ester.
63. (Currently Amended) A method of producing a population of proliferating undifferentiated human stem cells from a stem cell which method comprises incubating the stem cell in the presence of an agonist of a LPL receptor, the agonist selected from the group consisting of S1P, dihydro S1P, LPA, PAF and SPC ~~or functional equivalents thereof capable of inhibiting differentiation of the stem cell.~~
64. (Withdrawn) A method of producing a population of proliferating undifferentiated stem cells from a stem cell which method comprises incubating the stem cell in the presence of a ligand of a class III tyrosine kinase receptor.
65. (Currently Amended) A method of producing a population of proliferating undifferentiated human stem cells from a stem cell which method comprises incubating the stem cell in the presence of an agonist of a LPL receptor and a ligand of a class III tyrosine kinase receptor, the agonist selected from the group consisting of S1P, dihydro

S1P, LPA, PAF and SPC ~~or functional equivalents thereof capable of inhibiting differentiation of the stem cell.~~

66. (Original) A method according to claim 63 wherein the LPL receptor is selected from the group consisting of S1P1, S1P2 and S1P3.

67-68. (Canceled)

69. (Currently Amended) A method according to claim 63 wherein the agonist is S1P ~~or functional equivalent thereof capable of inhibiting differentiation of the stem cell.~~

70. (Currently Amended) A method according to claim 63 wherein the agonist is dihydro S1P ~~or functional equivalents thereof, capable of inhibiting differentiation of the stem cell.~~

71. (Currently Amended) A method according to claim 65 wherein the ligand is a PDGF ~~or functional equivalent thereof.~~

72. (Previously Presented) A method according to claim 65 wherein the tyrosine kinase receptor is PDGFR- α or PDGFR- β .

73. (Original) A method according to claim 71 wherein the PDGF is PDGFaa, PDGFab or PDGFbb.

74. (Withdrawn/Currently Amended) A method according to claim 64 comprising use of TNF alpha, NGF (nerve growth factor), a muscarinic acetylcholine agonist, ~~or a serum or phorbol ester.~~

75. (Withdrawn) A method according to claim 64 wherein the stem cell is derived from foetal tissue or adult tissue.

76. (Withdrawn) A method according to claim 75 wherein the stem cell is an ES cell.

77. (Withdrawn) A method according to claim 75 wherein the stem cell is a hES cell.

78. (Withdrawn) A population of undifferentiated stem cells produced by at least one of the methods according to claim 63 or using a substantially serum free medium useful for modulating spontaneous differentiation of a stem cell, comprising an agonist of LPL receptor.

79. (Canceled)

80. (Withdrawn) Use of a ligand of a class III tyrosine kinase receptor in modulating spontaneous differentiation of a stem cell.

81-86. (Canceled)

87. (Withdrawn) Use according to claim 80 wherein the ligand is a PDGF or functional equivalent thereof.

88. (Withdrawn) Use according to claim 80 wherein the tyrosine kinase receptor is PDGFR- α or PDGFR- β .

89. (Withdrawn) Use according to claim 87 wherein the PDGF is PDGF $\alpha\alpha$, PDGF $\alpha\beta$ or PDGF $\beta\beta$.

90-93. (Canceled)

94. (Withdrawn) Use of a ligand of a class III tyrosine kinase receptor in producing a population of proliferating undifferentiated stem cells from a stem cell.

95. (Canceled)

96. (Withdrawn) Use of a composition containing an agonist of a LPL receptor in a method of treating or preventing a disorder of stem cell differentiation.
97. (Withdrawn) Use of a composition containing a ligand of a class III tyrosine kinase receptor in a method of treating or preventing a disorder of stem cell differentiation.
98. (Withdrawn) Use of a composition containing a ligand of a class III tyrosine kinase receptor in a method of treating or preventing a disorder of stem cell differentiation.
99. (Withdrawn) A method of identifying a compound capable of modulating spontaneous differentiation of a stem cell, which method comprises
exposing a LPL receptor to a test compound; and
determining binding of the test compound to the LPL receptor.
100. (Withdrawn) A method of identifying a compound capable of modulating spontaneous differentiation of a stem cell, which method comprises
exposing a ligand of a class III tyrosine kinase receptor to a test compound; and
determining binding of the test compound to the tyrosine kinase receptor.
101. (Withdrawn) A method according to claim 99 wherein the modulation is inhibition of differentiation
102. (Withdrawn) A method according to claim 99 wherein the LPL receptor is selected from the group consisting of S1P1, S1P2, S1P3.
103. (Withdrawn) A method according to claim 100 wherein the tyrosine kinase receptor is a PDGF receptor.

104. (Withdrawn) A method according to claim 103 wherein the PDGF receptor is PDGFR- α or PDGFR- β .

105. (Withdrawn) A method according to claim 103 wherein the PDGF is PDGFaa, PDGFab or PDGFbb.

106. (Withdrawn) A method according to claim 99 wherein the stem cell is derived from foetal tissue or adult tissue.

107. (Withdrawn) A method according to claim 106 wherein the stem cell is an ES cell.

108. (Withdrawn) A method according to claim 106 wherein the stem cell is a hES cell.

109. (Previously Presented) The method of claim 41, wherein the stem cell is a hES cell.